Los Alamos NATIONAL LABORATORY EST. 1943

ESHID-602810

Environmental Protection & Compliance Division
PO Box 1663, K491
Los Alamos, New Mexico 87545
(505) 667-2211

National Nuclear Security Administration
Los Alamos Field Office, A316
3747 West Jemez Road
Los Alamos, New Mexico 87544
(505) 665-7314/Fax (505) 667-5948

Date: JAN 0 5 2018
Symbol: EPC-DO: 18-001
LA-UR: 18-20023
Locates Action No.:

Mr. John E. Kieling, Chief
Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Drive East, Building 1
Santa Fe, NM 87505

Subject: January 2018 Quarterly Report--Alternative Inspections of Building 1028 at Technical Area 54, Area G, Pad 5 (TA-54-1028)

Dear Mr. Kieling:

The letter transmits the January 2018 quarterly report regarding alternative inspections for waste containers stored at a permitted unit at Technical Area (TA) 54 at the Los Alamos National Laboratory (LANL). This report is being submitted by the U.S. Department of Energy (DOE) and Los Alamos National Security, LLC (the Permittees) to the New Mexico Environment Department-Hazardous Waste Bureau (NMED-HWB), as required by NMED-HWB in its March 8, 2017 approval of a 365-day extension for alternative inspections at TA-54, Building 1028 (TA-54-1028).

With personnel safety as the priority, the Permittees will continue the alternative inspections described previously as a recovery plan is developed and finalized for the waste containers within TA-54-1028. In addition, the Permittees will submit a final report by March 8, 2018.

As described in the enclosed quarterly report, the Permittees are continuing to develop options for long-term safe storage and/or pressure mitigation of the four containers within TA-54-1028. An updated safety evaluation of the current situation is also in progress and discussed in the report.

If you have comments/questions or would like to meet regarding this submittal, please contact Mark P. Haagenstad at (505) 665-2014 or Karen Armijo at (505) 665-7314.

Sincerely,

Ben Roberts
Division Leader

Sincerely,

Karen E. Armijo
Permitting and Compliance Program Manager

JCB/KEA/MPH/TAD:am

Enclosure: January 2018 Quarterly Report: Alternative Inspections of Building 1028 at Technical Area 54, Area G, Pad 5 (TA-54-1028)

Copy: Neelam Dhawan, NMED/HWB, Santa Fe, NM, (E-File)
Siona Briley, NMED/HWB, Santa Fe, NM, (E-File)
Douglas E. Hintze, EM-LA, (E-File)
Kimberly Davis Lebak, NA-LA, (E-File)
David J. Nickless, EM-WM, (E-File)
Peter Maggiore, NA-LA, (E-File)
Jody M. Pugh, NA-LA, (E-File)
Karen E. Armijo, NA-LA, (E-File)
Darlene S. Rodriguez, NA-LA, (E-File)
Craig S. Leasure, PADOPS, (E-File)
William R. Mairson, PADOPS, (E-File)
Michael T. Brandt, ADESH, (E-File)
Randall M. Erickson, ADEM, (E-File)
Cheryl D. Cabbil, ADNHHO, (E-File)
John Bretzke, ADESH, (E-File)
Ben Roberts, EPC-DO, (E-File)
Enrique Torres, ADEM, (E-File)
David J. Funk, ADEM, (E-File)
Leslie K. Sonnenberg, EWMO-DO, (E-File)
Susan McMichael, LC-LESH, (E-File)
Brian L. Watkins, WFO-DO, (E-File)
Stephanie Q. Griego, EWMO-DO, (E-File)
Mark P. Haagenstad, EPC-CP, (E-File)
Ellena I. Martinez, EPC-CP, (E-File)

Copy (cont):

lasomailbox@nnsa.doe.gov, (E-File)
locatesteam@lanl.gov, (E-File)
epc-correspondence@lanl.gov, (E-File)
adesh-records@lanl.gov, (E-File)
rcra-prr@lanl.gov, (E-File)

Los Alamos NATIONAL LABORATORY EST. 1943

COPY

Environmental Protection & Compliance Division
PO Box 1663, K491
Los Alamos, New Mexico 87545
(505) 667-2211

National Nuclear Security Administration
Los Alamos Field Office, A316
3747 West Jemez Road
Los Alamos, New Mexico 87544
(505) 665-7314/Fax (505) 667-5948

Date: JAN 0 5 2018
Symbol: EPC-DO: 18-001
LA-UR: 18-20023
Locates Action No.:

Mr. John E. Kieling, Chief
Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Drive East, Building 1
Santa Fe, NM 87505

Subject: January 2018 Quarterly Report--Alternative Inspections of Building 1028 at Technical Area 54, Area G, Pad 5 (TA-54-1028)

Dear Mr. Kieling:

The letter transmits the January 2018 quarterly report regarding alternative inspections for waste containers stored at a permitted unit at Technical Area (TA) 54 at the Los Alamos National Laboratory (LANL). This report is being submitted by the U.S. Department of Energy (DOE) and Los Alamos National Security, LLC (the Permittees) to the New Mexico Environment Department-Hazardous Waste Bureau (NMED-HWB), as required by NMED-HWB in its March 8, 2017 approval of a 365-day extension for alternative inspections at TA-54, Building 1028 (TA-54-1028).

With personnel safety as the priority, the Permittees will continue the alternative inspections described previously as a recovery plan is developed and finalized for the waste containers within TA-54-1028. In addition, the Permittees will submit a final report by March 8, 2018.

As described in the enclosed quarterly report, the Permittees are continuing to develop options for long-term safe storage and/or pressure mitigation of the four containers within TA-54-1028. An updated safety evaluation of the current situation is also in progress and discussed in the report.

ENCLOSURE 1

January 2018 Quarterly Report: Alternative Inspections of Building 1028 at Technical Area 54, Area G, Pad 5 (TA-54-1028)

EPC-DO-18-001

LA-UR-18-20023

Date: JAN 05 2018

Enclosure 1

January 2018 Quarterly Report

Alternative Inspections of Building 1028 at Technical Area 54, Area G, Pad 5 (TA-54-1028)

Introduction

As required by the New Mexico Environment Department-Hazardous Waste Bureau (NMED-HWB) in its March 8, 2017 approval letter, the purpose of this quarterly report is to describe actions and analyses undertaken by the U.S. Department of Energy (DOE) and Los Alamos National Security, LLC (the Permittees) between October 1 and December 31, 2017 regarding four Flanged Tritium Waste Containers (FTWCs) stored in the Resource Conservation and Recovery Act (RCRA) permitted unit at TA-54, Building 1028 (TA-54-1028). These waste containers hold tritium waste with trace amounts of lead, making the contents RCRA-regulated mixed low-level waste (MLLW), subject to the RCRA Hazardous Waste Facility Permit (HWFP) (EPA ID No. NM0890010515). The schedules for evaluations, options and final disposition of the four MLLW FTWCs are discussed as appropriate in this report.

The previous quarterly report that was submitted to NMED-HWB in October 2017 described the following activities:

- The Permittees' efforts during the previous reporting quarter to develop and finalize a plan for the long-term safe storage of the four MLLW FTWCs.
- The Permittees' efforts during the previous reporting quarter to develop and evaluate options for pressure mitigation that will enable off-site RCRA treatment and disposal of the four MLLW FTWCs.
- A description of the potential hazards and how the implementation of the 50-foot exclusion zone mitigates the hazards posed to human health.
- Status of evaluations to identify the level of safety required for near- and long-term management of the MLLW FTWCs at TA-54-1028. These will provide a basis for making decisions on resumption of visual inspections of the containers that are fully compliant with the RCRA HWFP requirements.
- Status of the Permittees' options, prior to and during the reporting quarter, that have been considered to develop and finalize a plan for the mitigation and/or long-term safe storage of the four MLLW FTWCs.
- Status of the Permittees' efforts during the reporting quarter to develop and evaluate options for pressure mitigation and containment that would ultimately enable off-site RCRA treatment and disposal of the four MLLW FTWCs.

This quarterly report includes the following:

1. Status update of the Permittees' potential options still under consideration during the reporting quarter, that have been considered viable enough to develop and finalize a plan for the mitigation and/or long-term safe storage of the four MLLW FTWCs.
2. Status update of the Permittees' efforts during the reporting quarter to develop and evaluate options for pressure mitigation and containment that would ultimately enable off-site RCRA treatment and disposal of the four MLLW FTWCs.
3. Status update of safety evaluation to identify the level of safety required for management of the MLLW FTWCs at TA-54-1028. These will provide a basis for making decisions on resumption of visual inspections of the containers that are fully compliant with the RCRA HWFP requirements.
4. Current and planned future activities projected for the upcoming reporting quarter.

The current controls in place, as well as the recovery process being prepared, have been and will be developed in accordance with the nuclear facility safety requirements mandated by DOE for management of nuclear facilities such as TA-54, Area G.

1. Planning for Remediation and/or Long-term Management and Safe Storage

As detailed in the April 6, 2017 baseline report (EPC-DO 17-142), the LANL Integrated Project Team (IPT) initially identified a variety of options for remediation and/or long-term management and safe storage of the MLLW FTWCs. In order to identify and compare options, the IPT utilized criteria of applicability, technical feasibility, effectiveness, the ability to be implemented, impacts to human health and the environment, and cost. This resulted in consideration of the seven potential options delineated in the October 2017 Quarterly report. Based on the criteria identified above, five of the options were determined unachievable, and two potential options were identified as achievable. They are described as follows, along with their current status as of the date of this report.

Option 1: LANL continues to evaluate containment systems meeting the required criteria and capability of holding all four MLLW FTWCs and that can withstand an event of dynamically opening the MLLW FTWCs in order to render them capable of transport to an authorized facility for treatment and disposal. As of the date of this report, no commercially-available containment system has been identified that is capable of meeting LANL and DOE's worker protection and long-term gas-containment criteria.

Option 2: Development continues on a prototype manifold which would attach to the flange on the MLLW FTWCs to allow for the controlled venting of the contained gases. This option has the potential to mitigate the pressure and gas mixtures, allowing safe handling, segregation and, ultimately, off-site transport. As of the date of this report, manifold components have been fabricated on-site and are undergoing inspection, assembly and testing. Testing of the manifold will consist of verification of component specifications, assembly scenarios, and physical testing of the complete unit. Procedures for installation and application are in development and will require approval, and the overall operation will require DOE approval.

First use of the manifold will be under controlled conditions at the TA-16 Weapons Engineering Tritium Facility (WETF). Based on the success of those applications, the development of plans, procedures and authorizations can be developed and scheduled for the MLLW FTWCs at TA-54, building 1028.

2. Options for Pressure Mitigation and Final Disposition

The IPT continues to work to identify and evaluate options to safely mitigate the pressure in the MLLW FTWCs. To date, the most viable option for this task has been determined to be the flange manifold described in Option 2 above. It is being designed and constructed on-site and is currently undergoing initial testing. This manifold is intended to enable the safe removal of the contained gases. Once the gases are removed and pressure is relieved, LANS would be able to return to routine container inspection requirements per the RCRA HWFP and allow the containers to be mitigated and managed safely with the ultimate goal of shipment off-site to an approved RCRA-compliant treatment and disposal facility.

Currently, no activities are allowed within 50-feet of the MLLW FTWCs located in TA-54 building 1028. If the revised safety evaluations allow DOE/LANS to adjust the access and handling restrictions currently in place, then the venting operation could potentially be performed on each MLLW FTWC. This would be a complex process and would require additional analysis and approval.

3. Status of Safety Evaluations

During the previous quarter, the team continued to revise and refine their hazards analysis in order to identify the activities that can be performed without adverse impact to the MLLW FTWCs. These analyses continue in order to identify whether and to what extent the containers, may be safely handled, moved, or potentially vented or opened in order to remove, manage, transport or repackage their contents.

These safety evaluations follow a formal DOE process for analyzing safety hazards codified in 10 CFR 830.203. Such a comprehensive safety analysis and review process must be entered into when a DOE contractor, such as LANS, identifies or learns of a situation that is not sufficiently bounded by the existing DOE-approved safety basis for the nuclear facility (in this case, for TA-54 Area G). As required by these regulations, LANS has submitted a revised safety evaluation to DOE for approval. It must be reviewed and approved prior to removing any controls, such as the 50-foot exclusion zone.

4. Current and Planned Future Activities

The current facility standing order, which establishes an exclusion zone of 50-feet from the MLLW FTWCs, remains in effect at Area G at the time of this report. All materials currently located in the exclusion zone are in long-term storage and there are no active waste-processing activities occurring in the area. No wastes are being added to or removed from the area of the

exclusion zone. Weekly alternative RCRA inspections continue from outside of the 50-foot exclusion boundary as approved in the March 8, 2017 letter from the NMED-HWB.

Actions during the upcoming quarter will continue to focus on: (1) further development and testing of the flange manifold as a potential pressure mitigation option and (2) final review and approval of the revised safety evaluation. If the revised safety evaluation redefines the level of access to the MLLW FTWCs, then DOE/LANS will notify NMED that the alternative inspections requirement are lifted and that normal visual inspections in compliance with the RCRA HWFP have resumed. As stated in the October 2017 quarterly report, LANS anticipated that the comprehensive review of the revised safety evaluation would require approximately 90 days for review, comment, approval, and implementation. At the time of this report, the DOE has provided a response to the submittal, with comments and questions that will be addressed by LANS. DOE/LANS anticipate that this process will be completed before the expiration of the 365-day extension for alternative inspections.

LANS continues to pursue the two options delineated in Section 1 above concurrently in order to develop the best path forward. Once the best path forward has been identified, a timeline for execution of that option will be developed. This determination is also anticipated to be made prior to the expiration of the 365-day extension for alternative inspections. Based on the best path forward, the Permittees will confirm the acceptability of the waste stream with candidate facilities that have been identified for final disposition. Any changes in the management of the MLLW FTWCs and the schedule of final disposition/disposal will be reported to NMED-HWB.